300W Railway Single Output DC-DC Converter

RSD-300 series

■ Features :

- Compliance to EN50155 and EN45545-2 railway standard
- 2:1 wide input range
- Protections: Short circuit / Overload / Over voltage / Over temperature / Input reverse polarity
- 4000VDC I/O isolation
- Cooling by free air convection
- Half encapsulated
- Built-in constant current limiting circuit
- 1U low profile 40mm
- All using 105℃ long life electrolytic capacitors
- LED indicator for power on
- 100% full load burn-in test
- 3 years warranty

CE

SPECIFICATION

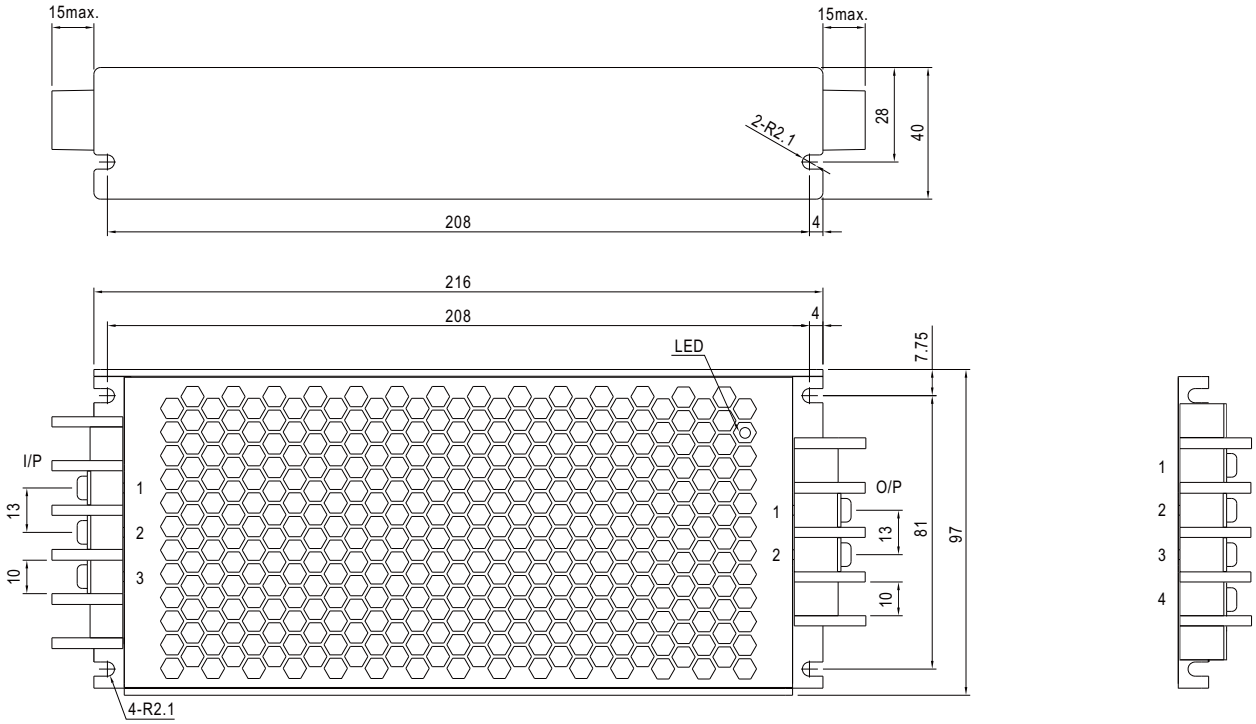
MODEL			RSD-300F-5	RSD-300F-12	RSD-300F-24	RSD-300F-48
OUTPUT	DC VOLTAGE		5V	12V	24V	48V
	RATED CURRENT		42A	25A	12.5A	6.3A
	CURRENT RANGE		0 ~ 42A	0 ~ 25A	0 ~ 12.5A	0 ~ 6.3A
	RATED POWER		210W	300W	300W	302.4W
	RIPPLE & NOISE (max.) Note.2		100mVp-p	120mVp-p	150mVp-p	180mVp-p
	VOLTAGE TOLERANCE Note.3		±2.0%	±2.0%	±2.0%	±2.0%
	LINE REGULATION		±0.5%	±0.3%	±0.2%	±0.5%
	LOAD REGULATION		±1.0%	±1.0%	±1.0%	±1.0%
	SETUP, RISE TIME		800ms, 50ms at full load			
	HOLD UP TIME (Typ.)		F-type comply with S2 level @ full load			
INPUT	VOLTAGE RANGE	CONTINUOUS	50.4 ~ 93.6VDC			
		1 SEC.	43.2 ~ 100.8VDC			
	EFFICIENCY (Typ.)		89%	91%	91%	91.5%
	DC CURRENT (Typ.)		3.25A/72V	4.6A/72V	4.6A/72V	4.6A/72V
	INRUSH CURRENT (Typ.)		45A/72VDC			
PROTECTION	OVERLOAD		105 ~ 135% rated output power			
			Protection type : Constant current limiting, recovers automatically after fault condition is removed			
	OVER VOLTAGE		5.75 ~ 7V	13.8 ~ 16.2V	27.6 ~ 32.4V	55.2 ~ 64.8V
			Protection type : Shut down o/p voltage, re-power on to recover			
	OVER TEMPERATURE		Shut down o/p voltage, recovers automatically after temperature goes down			
ENVIRONMENT	WORKING TEMP.		-40 ~ +55℃ (no derating) ; +70℃ @ 60% load by free air convection ; +70℃ no derating with external base plate, TX class compliance			
	WORKING HUMIDITY		5 ~ 95% RH non-condensing			
	STORAGE TEMP., HUMIDITY		-40 ~ +85℃ , 5 ~ 95% RH			
	TEMP. COEFFICIENT		±0.03%/℃ (0 ~ 55℃)			
	VIBRATION		10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes ; Mounting : compliance to IEC61373			
SAFETY & EMC (Note 4)	SAFETY STANDARDS		Meet IEC60950-1(LVD))			
	WITHSTAND VOLTAGE		I/P-O/P:4KVDC I/P-FG:2.5KVDC O/P-FG:2.5KVDC			
	ISOLATION RESISTANCE		I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25℃/ 70% RH			
	EMC EMISSION		Compliance to EN55022 (CISPR22) Conduction Emission: Class A, Radiation Emission: Class B			
	EMC IMMUNITY		Compliance to EN61000-4-2,3,4,5,6,8, light industry level, criteria A			
	RAILWAY STANDARD		Meet EN50155 / IEC60571 including IEC61373 for shock & vibration, EN50121-3-2 for EMC ; EN45545-2 for fire protection			
OTHERS	MTBF		130.7K hrs min. MIL-HDBK-217F (25℃)			
	DIMENSION		216*97*40mm (L*W*H)			
	PACKING		1.19Kg ; 12pcs/15.3Kg/1.12CUFT			

NOTE

1. All parameters NOT specially mentioned are measured at 72VDC input, rated load and 25℃ of ambient temperature.
2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
3. Tolerance : includes set up tolerance, line regulation and load regulation.
4. The power supply is considered a component which will be installed into a final equipment. All the EMC tests are been executed by mounting the unit on a 360mm*360mm metal plate with 1mm of thickness. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to “EMI testing of component power supplies.” (as available on http://www.meanwell.com)
5. Strongly recommended that external output capacitance should not exceed 5000uF.

■ Mechanical Specification

Case No.205A Unit:mm



Input Terminal Pin No. Assignment :

Pin No.	Assignment
1	DC INPUT V+
2	DC INPUT V-
3	FG ⏚

Output Terminal Pin No. Assignment :

(For 12V, 24V, 48V)

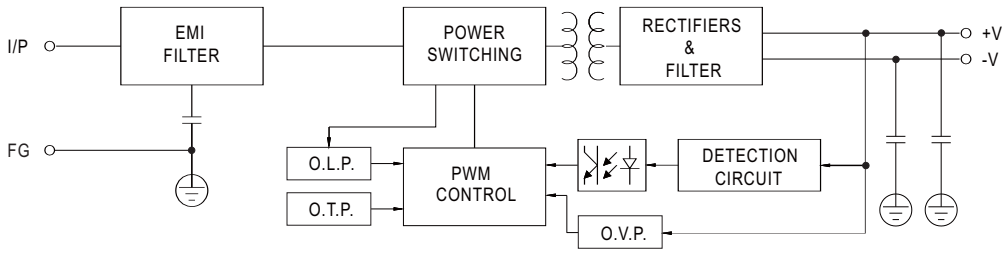
Pin No.	Assignment
1	DC OUTPUT -V
2	DC OUTPUT +V

(For 5V)

Pin No.	Assignment
1,2	DC OUTPUT -V
3,4	DC OUTPUT +V

■ Block Diagram

fosc : 130KHz



■ Input Fuse

There are one or two fuses connected in series to the positive input line, which are used to protect against abnormal surge. Fuse specifications of each model are shown as below.

Type	Fuse Type	Reference and Rating
B	Fast	Littelfuse 257, 30A, 32V
C	Time-Lag	Conquer UDA-A, 16A, 250V
D	Time-Lag	Conquer UDA-A, 8A, 250V
E	Time-Lag	Conquer UDA-A, 20A, 250V
F	Time-Lag	Conquer UDA-A, 10A, 250V